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General Services Administration
National Capital Region
Washington, DC 20407



December 11, 1985

Smith, Hinchman & Grylls Associates, Inc.
455 West Fort Street
Detroit, Michigan 48226

Subject: Headquarters Expansion Package
GS-11B-19068
R.F. Shield Grounding
Log 1101

Gentlemen:

Reference is made to your letter of December 4, 1985 in connection with the above referenced subject.

In reply thereto please be advised as follows:

1. We agree that if the specified test had not been accomplished before this time it would be impossible to do now. We are, however, confident that the specified tests were made on March 14, 1985, following the caisson installation.
2. We are also in agreement that the Bid Package No. 1 grounding is a critical component of the R.F. shield being installed by Bid Package No. 2 contractor. However, the attached test results by Fischbach and Moore, Job No. 2169, (which must have been performed under the surveillance of my staff) would appear to restore the current integrity-status of the R.F. shielding. The test results would also eliminate the need to remove any of the Bid Package No. 2 contractor's work to do the specified testing.
3. Fischbach and Moore was asked to confirm the test results. Mr. Joseph C. Barbarito assured me that the tests were made and described the three point fall-of-potential method and equipment used.

Accordingly, it would appear to the writer that the ground resistance measurements as required by the specifications were in fact taken and the contract terms complied with. A mechanical (visual) inspection of the 2/0 bare copper cable thermo-welded to the caisson reinforcement was made by the writer. The welded connections were secure.

Smith, Hinchman & Grylls Associates, Inc.
December 11, 1985
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Please advise if more information is required.

Sincerely,


Arthur J. Carlucci
Project Manager
Headquarters Expansion Project

AJC:pb

cc: Gary Lee
Sam Bryson
Andy Mitro

Attachment

FISCHBACH & MOORE 2169

14 March 85 -- No standing water in caisson holes. Earth will not form ball. Multi-readings taken from each test electrode set up.

<u>Col. #</u>	<u>Ohm</u>	<u>Col. #</u>	<u>Ohm</u>	<u>Col. #</u>	<u>Ohm</u>
1-K	3.4	8-K	4.6	18-K	7.8
1-J	3.0	8-B	5.2	18-B	5.3
1-H	2.9				
1-G	4.4	9-K	.02	19-K	4.1
1-F	3.7	9-B	3.4	19-B	7.3
1-E	2.6				
		10-K	8.0	20-K	9.4
2-K	3.4	10-J	.08	20-H	9.7
2-D	4.6	10-H	5.3	20-E	8.6
		10-G	1.2	20-B	9.9
3-K	4.2	10-B	6.4		
3-C	6.3			21-K	11.3
		11-C	6.9	21-B	10.1
4-K	.84	11-A-F	2.1	22-K	9.4
4-H	8.0			22-B	8.6
4-E	2.7	12-D	4.2	23-K	7.4
4-B	.63	12-B-F	5.3	23-H	7.3
				23-E	8.7
5-K	1.2	13-D	3.6	24-K	9.6
5-B	3.7			25-K	10.4
		14-D	6.8	25-D	11.2
6-K	.48	14-B-F	7.2	26-K	10.9
6-B	.59	15-B-F	4.9	26-J	11.6
				26-H	12.0
7-K	2.3	16-D	4.2	26-G	11.4
7-H	7.8			26-F	11.8
7-E	4.3	17-K	8.3	26-E	10.8
7-B	6.1	17-J	8.6		
		17-H	6.7		
		17-G	9.4		

5 December 85

SAM:

This is a copy of my notes I made when we tested caissons -- the office can't find the copy sent them -- they will soon send official test results on a form to Hyman, GSA, etc.

Joseph C. Barborato
FJM

SECTION 16620 PAGE 2
DATE 01/11/84 TIME 18.613
GROUNDING SYSTEM

SH&G 13155 BP-1
CENTRAL INTELLIGENCE AGENCY
HEADQUARTERS EXPANSION
91D PACKAGE 1
SITE, FOUNDATIONS & PARKING DECK

- 3 35) THE NEUTRAL POINTS OF TRANSFORMERS SHALL BE SOLIDLY GROUNDED.
- 2 36) EQUIPMENT GROUND
- 3 37) EQUIPMENT GROUND BUSES SHALL BE INTERCONNECTED BY A SEPARATE EQUIPMENT
38) GROUND CONDUCTOR.
- 3 39) EQUIPMENT GROUNDING SHALL BE BY MEANS OF A SEPARATE GROUND CONDUCTOR
40) FROM THE EQUIPMENT GROUND BUS TO THE BASIC GROUNDING SYSTEM.
- 3 41) WHERE FLEXIBLE STEEL CONDUIT IS USED, AN ADDITIONAL STRANDED CONDUCTOR
42) SHALL BE INSTALLED INSIDE OF THE FLEXIBLE CONDUIT AS A GROUND
43) CONNECTION. THIS CONDUCTOR SHALL BE CONNECTED TO A LOCKING TYPE
44) GROUNDING BUSHING AT EACH END OF THE CONDUIT.
- 3 45) WHERE FLUORESCENT OR MERCURY LIGHT FIXTURES ARE SUSPENDED BY MEANS OF
46) CONDUIT, OR RODS WITH HOOK FITTINGS, THE FIXTURE SHALL BE GROUNDED
47) WITH A SEPARATE GROUND CONDUCTOR IN THE CORD CONNECTION.
- 2 48) UNDERGROUND DUCT SYSTEM GROUND
- 3 49) A NO. 4/0 BARE COPPER GROUND WIRE SHALL BE PROVIDED IN THE UNDERGROUND
50) DUCT SYSTEM. THIS GROUND CONDUCTOR SHALL SERVE AS A GROUND FAULT
51) CURRENT RETURN PATH TO THE PRIMARY SWITCHGEAR.
- 3 52) A GROUND BUS OF 1/4 INCH BY 3/4 INCH SHALL BE PROVIDED IN EACH POWER
53) MANHOLE. THE DUCT SYSTEM GROUND CONDUCTOR, CABLE SHIELD AT SPLICES AND
54) NON-CURRENT CARRYING METAL EQUIPMENT SHALL BE BONDED TO THIS BUS.
- 2 55) LUMINAIRE-POLE ASSEMBLY GROUNDING
- 3 56) NON-CURRENT CARRYING PARTS OF THE POLE AND LUMINAIRE ASSEMBLY SHALL BE
57) GROUNDED. THE INTERNAL EQUIPMENT GROUND CONDUCTOR SHALL BE COPPER AND
58) EQUAL IN SIZE TO THE CIRCUIT EQUIPMENT GROUND CONDUCTOR. THE INTERNAL
59) EQUIPMENT GROUND CONDUCTOR SHALL BE CONNECTED TO THE CIRCUIT EQUIPMENT
60) GROUND CONDUCTOR. IN ADDITION, GROUND CONDUCTORS FOR THE TYPE "SA"
61) AND "SB" POLES SHALL BE CONNECTED TO THE CONCRETE ENCASED EARTH
62) ELECTRODE SYSTEM. THE CONCRETE ENCASED EARTH ELECTRODES ARE FOR
63) LIGHTNING STRIKES AND ARE NOT INTENDED TO REPLACE THE CONTINUOUS
64) EQUIPMENT GROUND CONDUCTOR TAKEN FROM THE POWER SUPPLY PANELBOARD.
- 3 65) THE CONCRETE-ENCASED EARTH ELECTRODE SYSTEM FOR THE SITE LIGHTING
66) POLES SHALL CONSIST OF THE REINFORCING STEEL WITHIN THE POLE BASE. THE
67) INDIVIDUAL REINFORCING STEEL BARS SHALL BE EFFECTIVELY MADE
68) ELECTRICALLY CONTINUOUS. A NO. 6 BARE COPPER GROUND WIRE SHALL BE
69) CONNECTED TO THE STEEL REINFORCING AND TERMINATED ON THE POLE
70) GROUNDING LUG HEADQUARTERS EXPANSION EARTH ELECTRODE SYSTEM.
- 2 71) HEADQUARTERS EXPANSION EARTH ELECTRODE SYSTEM
- 3 72) A CONCRETE-ENCASED EARTH ELECTRODE SYSTEM FOR FUTURE USE IN THE
73) HEADQUARTERS EXPANSION SHALL BE PROVIDED. THE EARTH ELECTRODE SYSTEM
74) SHALL CONSIST OF THE STEEL REINFORCING BARS IN THE FOUNDATIONS
75) INDICATED. THE STEEL REINFORCING BARS SHALL BE EFFECTIVELY MADE
76) ELECTRICALLY CONTINUOUS AS INDICATED.
- 1 77) 4. FIELD TESTING
- 2 78) MECHANICAL INSPECTION
- 3 79) THE GROUNDING SYSTEM SHALL BE INSPECTED TO DETERMINE THAT WELDED OR
80) BRAZED CONNECTIONS ARE SECURE AND DO NOT PRESENT HIGH RESISTANCE
81) JOINTS. BOLTED CONNECTIONS SHALL BE TESTED WITH A TORQUE WRENCH.
82) MINIMUM TORQUE WRENCH SETTING FOR BOLTS 3/8 INCH DIAMETER AND LARGER
83) SHALL BE 50 FT.-LBS.
- 2 84) GROUND RESISTANCE MEASUREMENTS

SH&G 13155 BP-1
CENTRAL INTELLIGENCE AGENCY.
HEADQUARTERS EXPANSION
BID PACKAGE 1

SECTION 6620 PAGE 3
DATE 01/11/84 TIME 18.613
GROUNDING SYSTEM

SITE, FOUNDATIONS & PARKING DECK

85) GROUND RESISTANCE MEASUREMENTS SHALL BE MADE ON EACH INDIVIDUAL
86) ELECTRODE. THE TESTS SHALL BE PERFORMED BY THE THREE POINT
37) FALL-OF-POTENTIAL METHOD. GROUND RESISTANCE MEASUREMENTS SHALL BE MADE
88) ONLY IN NORMALLY DRY WEATHER OR NOT LESS THAN 48 HOURS AFTER RAINFALL.

3 89) THE TEST REPORTS SHALL INCLUDE A DESCRIPTION OF THE ELECTRODE TESTED
90) IN CONJUNCTION WITH THE READINGS TAKEN FOR THAT SYSTEM AND, WHERE
91) APPLICABLE, THE SOIL CONDITIONS AT THE TIME THE MEASUREMENTS WERE
92) TAKEN.

***END OF SECTION